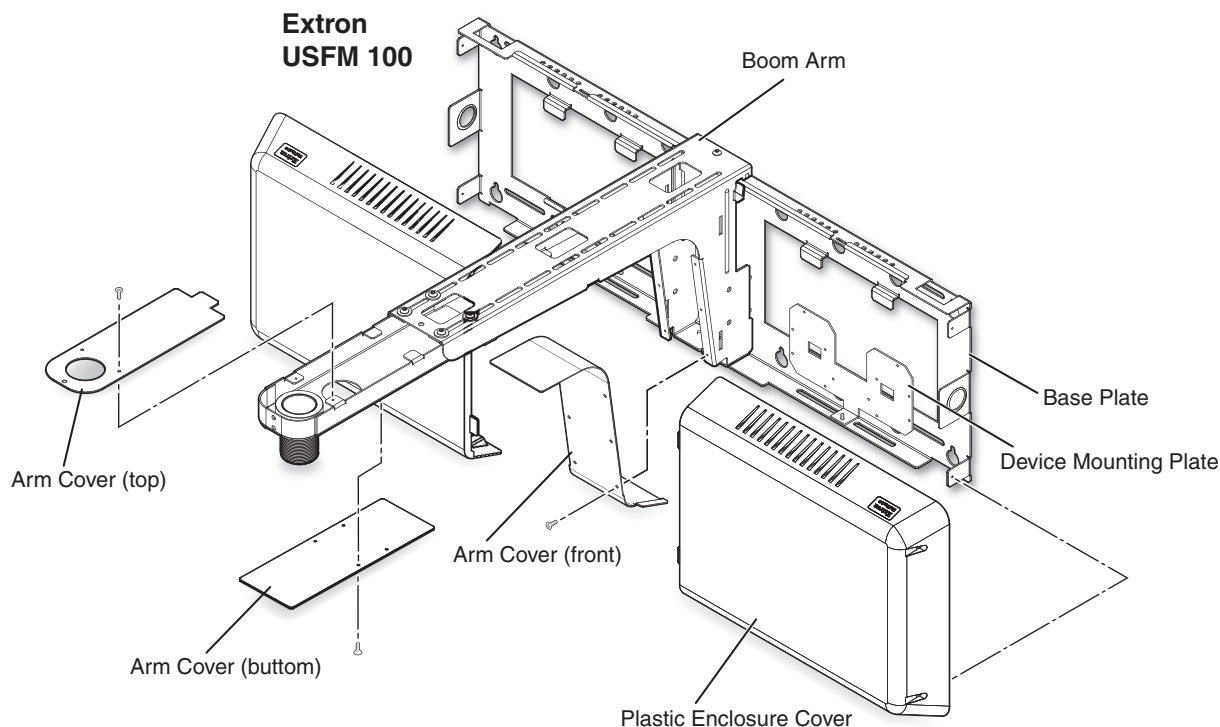# Extron® Electronics
INTERFACING, SWITCHING AND CONTROL

# USFM 100 Installation Guide

The Extron USFM 100 is a mounting kit for suspending ultra short throw projectors from a wall. The USFM 100 base plate enclosure is capable of mounting a PoleVault® System switcher and its supplied power supply, with sufficient room remaining for installing additional devices and cable management. It is designed to be used with the UPB 25 universal projector bracket (supplied with the Extron WallVault® system).

The USFM 100 has knockouts on all four sides that allow external raceways or conduits to be attached for cabling runs where necessary.

> **CAUTION:** Maximum projector load for the USFM 100 boom arm is 20 lbs (9.1 kg).



**Extron USFM 100** — Boom Arm, Base Plate, Device Mounting Plate, Arm Cover (top), Arm Cover (front), Arm Cover (buttom), Plastic Enclosure Cover

**Figure 1.** USFM 100 Parts

## Hardware Included in the Kit

| Parts | Qty | Application |
|---|---|---|
| ¼ - 20 x 2 inch, pan head bolts, | 4 | Base plate to wall installation |
| ¼ inch Toggle assembly | 4 | Base plate to wall installation |
| ¼ inch metal washers (47/64 inch OD) | 8 | Base plate to wall installation |
| 5/16 x 3 inch lag screws | 4 | Base plate to wall installation |
| 5/16 inch metal washers (11/32 inch ID, 11/16 inch OD) | 4 | Base plate to wall installation and boom arm |
| ¼-28 x 3/4 inch hex screw | 1 | Securing boom arm (top) |
| ¼-20 x 1/2 inch button hex screws | 4 | Securing boom arm (extension) |
| 10-32 x 3/8 inch pan head screws | 2 | Securing boom arm (bottom) |
| 10-32 x ¼ inch set screw, | 1 | Securing projector pipe |
| 6-32 x ¼ inch button hex screws | 11 | Securing covers for boom arm (10) Securing device mounting plate (1) |
| 6-32 x ½ inch button hex screws | 4 | Securing plastic covers for enclosure |
| Tie wraps | 4 | Securing power supply wires |
| 4-40 x ¼ inch pan head screws | 2 | Securing switcher to plate |

## Installation

> **WARNING:** Before commencing installation, the wall structure must be examined to determine if it is suitable for the proper installation and support of this product. If needed, the installer should reinforce the wall. Drywalls should have a minimum thickness of 1/2 inch and a maximum thickness of 5/8 inch. Improper installation of this product could lead to serious injury.

> **NOTE:** Check local building standards and codes to verify that the installation meets regulatory requirements. Observe all local and national building, electrical, and safety codes, UL requirements, and ADA accessibility guidelines.

The location and type of wall where the USFM 100 is to be installed should be identified before starting installation. This determines the installation method and the type of fasteners used to secure the plate to the wall.

### Recommended installation tools
• Level (24 inch) • Ladder • Tape measure • Stud finder • Drill and drill bits • Phillips screwdriver
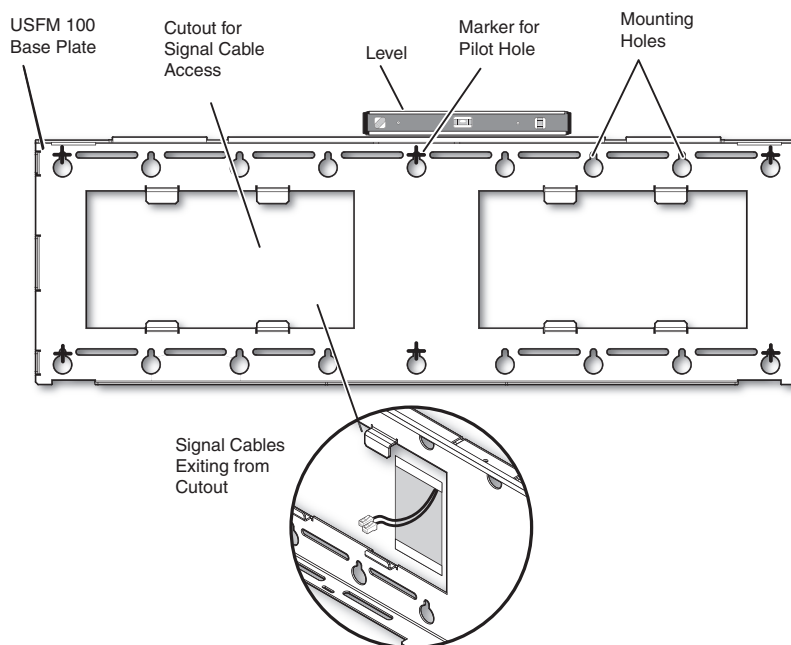• Allen hex wrenches (5/64, 3/32, and 5/32 inch sizes)

### 1. Mount the Base Plate

> **NOTE:** Before installation, see the user manual for the display device to determine the proper location and placement of the mount. Take into consideration the projector lens offset, screen size, screen aspect, and projected image throw distance. See page 8 for the dimensions of the USFM 100 (with the projector pipe and UPB 25 attached) to aid in this determination

   **a.** At the desired site, use an edge-to-edge stud finder to locate the center of the wall studs (wood or steel). Mark each stud location.

> **NOTE:** **For secure installation, it is required to attach the base plate to two wall studs, using a minimum of four securing points**. Drywall toggles can be used for holes that are not aligned with studs (see figure 3). This product is not intended to be mounted solely to drywall.

   **b.** Hold and level the base plate against the wall. Mark a minimum of four positions (two top, two bottom) using either the mounting slots or the keyholes (slots uppermost) that are on the stud lines (see the + marks in figure 2). Where applicable, mark the mounting holes on the wall for drywall toggles.
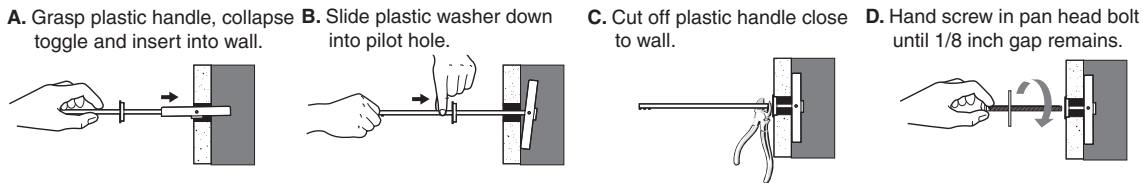


USFM 100 Base Plate
Cutout for Signal Cable Access
Level
Marker for Pilot Hole
Mounting Holes
Signal Cables Exiting from Cutout

**Figure 2.** Wall Mounting Features

   **c.** If the cables are to be run behind the wall to the USFM 100 location, mark the cutout area on the wall large enough for signal cables (see figure 2).

   **d.** Remove the base plate and set it aside. Cut out the marked area for cable access.

**For drywall with wood studs**

  i.  Drill ¼ inch pilot holes at the marked stud locations.

  ii.  Align the base plate mounting holes over the pilot holes and lightly secure with 5/16 inch lag screws and washers.

> **NOTE:**  If using toggle screws for assembly, follow the installation method (steps **A-D**) shown in figure 3.

**A.** Grasp plastic handle, collapse toggle and insert into wall.  **B.** Slide plastic washer down into pilot hole.  **C.** Cut off plastic handle close to wall.  **D.** Hand screw in pan head bolt until 1/8 inch gap remains.

**Figure 3.** Steps for Toggle Assembly Installation

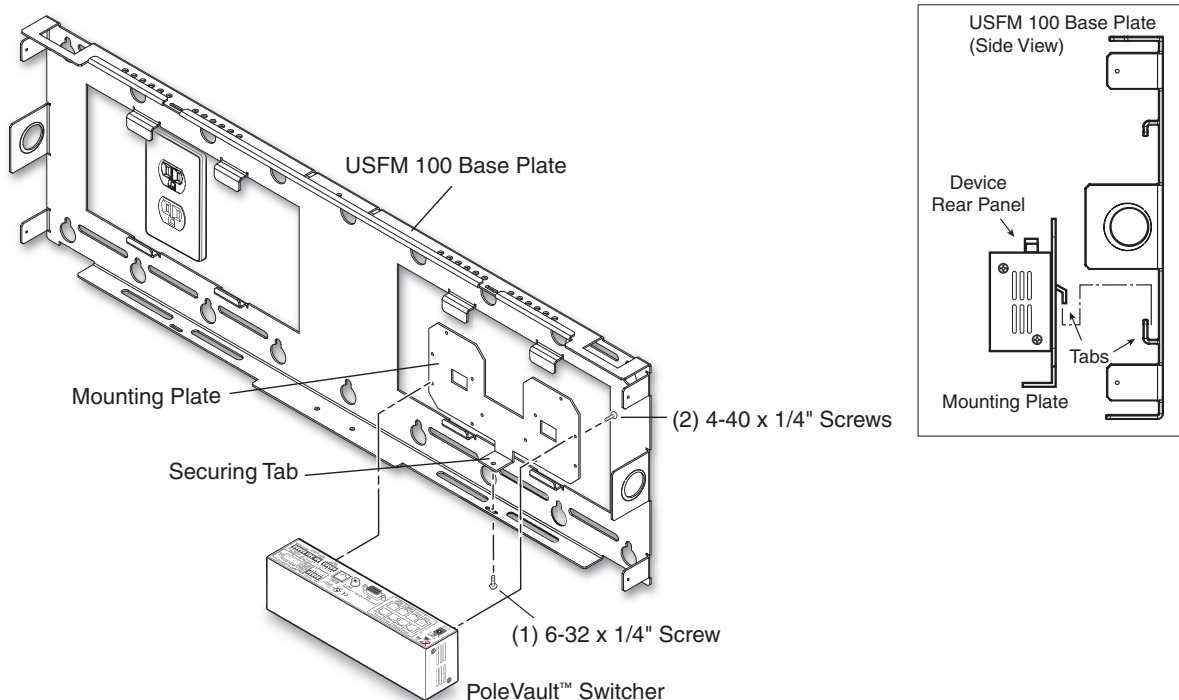  iii.  Verify level and position, and fully tighten down all the screws to secure the plate flush to the wall.

**For drywall with steel studs**

  i.  Drill a ½ inch (13 mm) hole through the stud, at each of the locations (four recommended).

  ii.  Insert the supplied toggles through the studs and lightly secure the plate using the four supplied (¼-20 x 2 inch) bolts and washers.

  iii.  Verify level and position, and fully tighten down all the bolts to secure the plate flush to the wall.

## 2. Mount the Switcher

  a.  Place the mounting plate flat on the switcher base with the two small raised tabs on top, and the small securing tab over the front panel. Align the two mounting holes in the switcher base with the corresponding holes on the mounting plate. Secure the plate to the switcher using the two 4-40 x ¼ inch pan head screws.

  b.  Secure the mounting plate (and switcher) to the base plate by aligning the two small tabs on the back of the mounting plate over the corresponding tabs on the base plate (see figure 4, inset). Slide it down into place. Secure it to the base plate by passing a 6-32x¼ inch screw up through the securing tab (see figure 4). Tighten down the screw.

> **NOTE:**  Mount the switcher with the rear panel uppermost for ease of cable connection (see figure 4).

USFM 100 Base Plate

USFM 100 Base Plate (Side View)

Device Rear Panel

Mounting Plate

Tabs

Mounting Plate

Securing Tab

(2) 4-40 x 1/4" Screws

(1) 6-32 x 1/4" Screw
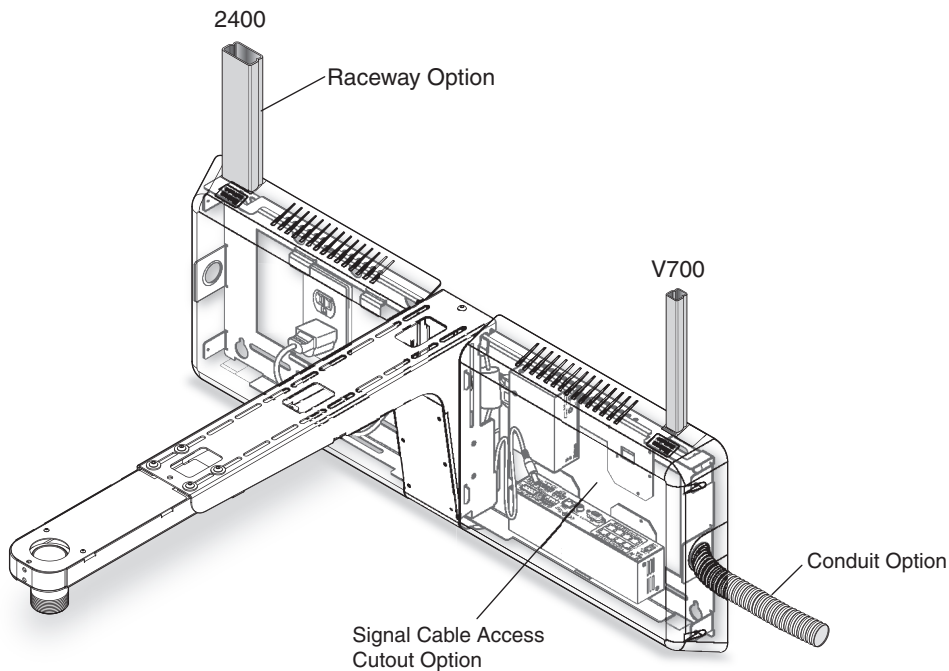
PoleVault™ Switcher

**Figure 4.** Attach Switcher to Mounting Plate and Secure to Base Plate

### 3. Run Cables

> **NOTE:** All cable installation should be performed in accordance with local and national building codes, fire and safety codes, and local and national electrical codes.

Run signal cables from the PoleVault input wallplates, control device location, and the speakers to the USFM 100 location. Cables can be routed behind the walls, through a surface raceway (such as Wiremold 700 or 2400), or through conduit directly to the USFM 100.



2400

Raceway Option

V700

Conduit Option

Signal Cable Access
Cutout Option

**Figure 5.** **Cabling Run Options**

**If running cable behind the walls:**

Run all the cables from all the locations to the USFM 100 and through the access hole (cut in step **1d**).

**Proceed to step 4.**

**If using a surface raceway or conduit:**

**a.** Turn over the left or right cover as needed, and from the inside, cut the most suitable marked raceway or conduit knockout for the cable to enter the USFM 100. Remove the knockout.

**b.** Run the raceway or conduit from all locations to the marked entrance and attach to the baseplate.

**c.** Run the cables through the raceway or conduit to the USFM 100.
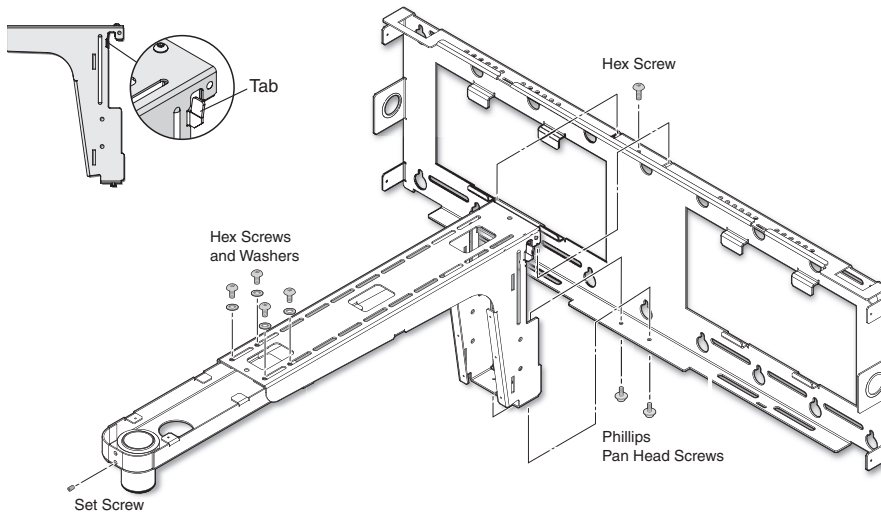
### 4. Cable the Switcher

Connect the cables from the PoleVault wallplates, control device (MediaLink® Controller), speakers, and optional accessories (VoiceLift, Page Sensor Kit) to the rear ports of the switcher. See the *PVS 305SA Setup Guide* for connection details.

> **NOTE:** If using a device other than a PVS 305SA (for example, PVS 204SA Plus), refer to the specific device guide for details.
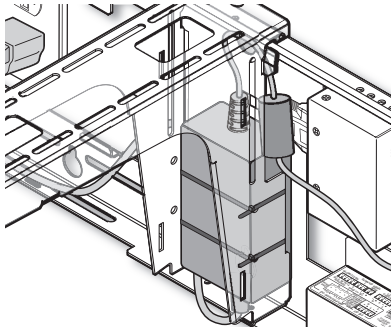
## 5. Attach the Boom Arm, Power Supply, and Projector

**a.** Hook the boom arm over the top rail on the base plate so that the tab on the arm (see figure 6, inset) is against the rail. Secure the arm at the bottom with the two supplied (10-32 x 3/8 inch) pan head screws and washers, and at the top with the single ¼-28 x ¾ inch hex screw.



Tab
Hex Screw
Hex Screws and Washers
Phillips Pan Head Screws
Set Screw

**Figure 6.** Hook Boom Arm Over Rail and Secure

**b.** Secure the power supply within the support end of the boom arm. To do this, pass the tie wraps through the holes on one side of the arm and then around the power supply (see figure 7). Tighten the tie wraps. The cables should then be easily and safely routed to the electrical outlet and to the switcher.



**Figure 7.** Secure the Power Supply inside the Boom Arm

**c.** Extend the boom arm to the appropriate projector throw distance and secure in the applicable slots with the four supplied (¼-20 x ½ inch) hex screws and washers.

**d.** Screw the threaded pipe up into the end of the boom arm. Lock it in place with the supplied set screw (located in the lower hole on the boom arm end.

> **NOTE:** The upper hole on the boom arm end is for attaching an optional seismic/support wire.

**e.** Run the VGA and composite video cables from the switcher to the projector through the boom arm so that they exit down the projector mounting pipe.

> **NOTE:** Provide sufficient cable slack within the boom arm to allow for future arm length adjustment.

**f.** Referring to the *UPB 25 User Manual*, screw the UPB 25 upper mounting plate onto the threaded pipe and attach the projector to the UPB 25 projector bracket.

**g.** Attach the projector bracket (with projector installed) onto the UPB 25 mounting plate and secure.

**h.** Connect the output cables from the switcher, any MLC control cables, and the power cable to the projector.

> **CAUTION:** Do not thread the projector power cable through the boom arm or mounting pipe. Threading it through the arm or the pipe violates national electrical regulations.

## 6. Complete the Installation

**a.** Switch on the display device, control device, and signal sources, and configure the system. Adjust the position and length of the boom arm as needed, adjusting the UPB 25 to center the image.  When fully satisfied, secure the arm and tighten down all the UPB 25 locking screws.

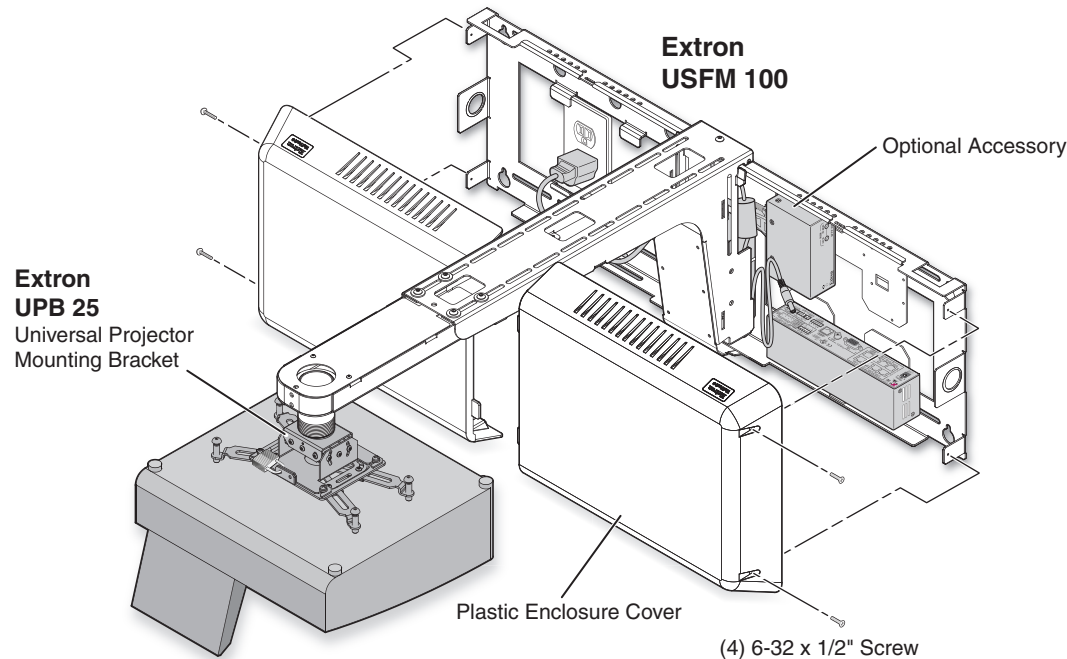**b.** Place the covers over the installed plate and boom arm, and secure with supplied screws.



**Figure 8. Attach Covers and Secure**

For full configuration and setup details, see the *PoleVault System Installation Manual*, the *MLC 104 Plus Series Reference Manual*, and the *PVS 305SA User Manual,* all available online at **www.extron.com.**

## General Specifications

Mounting
     Wall mount ...................... Yes, with included hardware
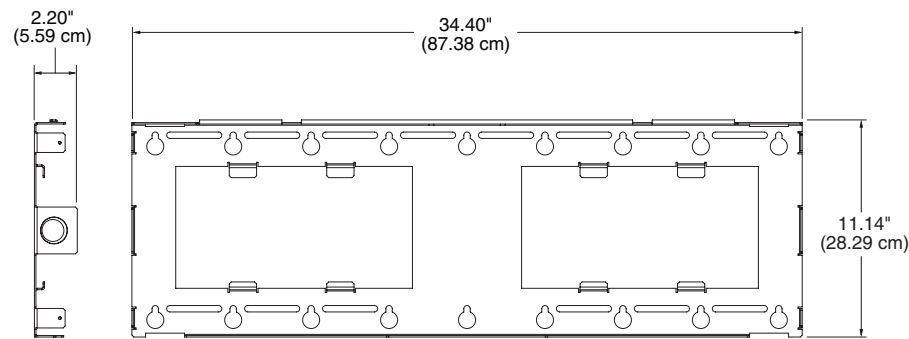Maximum load capacity............... 20 lbs (9.1 kg) projector weight (does not include UPB 25)
Material ...................................... Steel (structural parts), plastic (covers), aluminum (boom arm covers)
Dimensions (see page 7 for images)
     Base plate................................ 11.1" H x 34.4" W x 2.2" D (28.3 cm H x 87.4 cm W x 5.6 cm D)
     Base plate with cover............... 12.9" H x 36.3" W x 2.7" D (32.9 cm H x 92.2 cm W x 7.0 cm D
     Boom arm .............................. 12.5" H x 3.6" W x 21.7 - 31.8" D (31.9 cm H x 9.1 cm W x 55.0 - 80.8 cm D)
     Boom extension range ............. 17.5" (44.4 cm)
Product weight.............................. 17 lbs (7.7 kg)
Shipping weight............................ 25 lbs (12 kg)
Vibration...................................... ISTA 1A in carton (International Safe Transit Association)

**NOTE:** Weights exclude the UPB 25.

Regulatory compliance
     Safety ..................................... c-UL, UL
Warranty...................................... 3 years parts and labor

**NOTE:** Specifications are subject to change without notice.

## USFM 100 Dimensions

2.20"
(5.59 cm)

34.40"
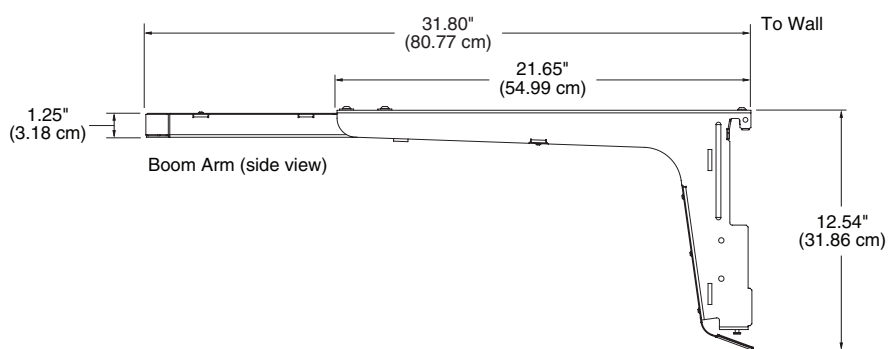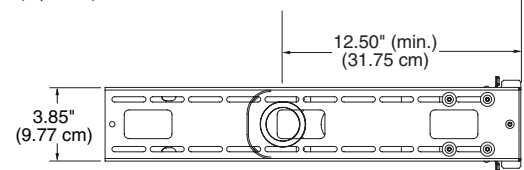(87.38 cm)

11.14"
(28.29 cm)

Base Plate (front view)

36.29"
(92.19 cm)

2.74"
(6.96 cm)

12.94"
(32.86 cm)

Base Plate with Plastic Covers

31.80" (max.)
(80.77 cm)

To Wall

30.00" (max.)
(76.20 cm)

21.65"
(54.99 cm)

3.60"
(9.14 cm)

Boom Arm (top view)

12.50" (min.)
(31.75 cm)

3.85"
(9.77 cm)

31.80"
(80.77 cm)

To Wall
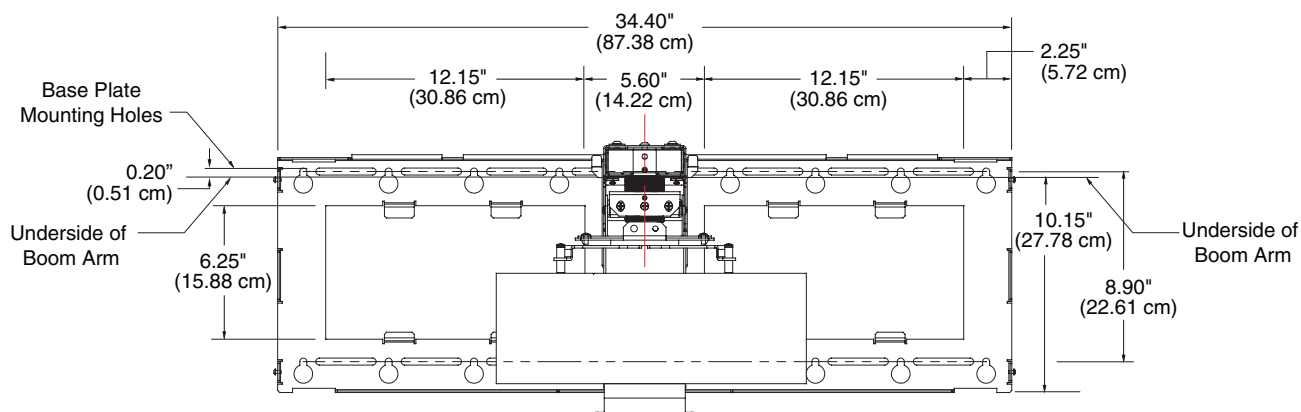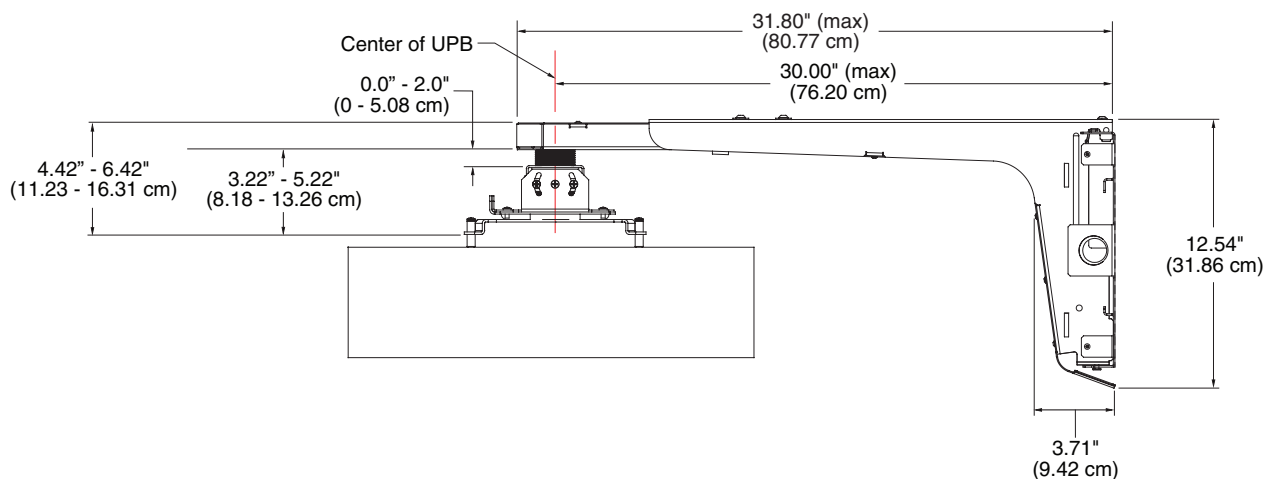
21.65"
(54.99 cm)

1.25"
(3.18 cm)

Boom Arm (side view)

12.54"
(31.86 cm)

## Aligning the Projector

When aligning the projector to the screen or wall display, consult the projector manual for the relevant throw lengths. See the images below for the dimensions of USFM 100 with the UPB 25 installed.

Page 6 shows the USFM 100 specifications and page 7 show the basic unit dimensions.

Center of UPB

31.80" (max)
(80.77 cm)

30.00" (max)
(76.20 cm)

0.0" - 2.0"
(0 - 5.08 cm)

4.42" - 6.42"
(11.23 - 16.31 cm)

3.22" - 5.22"
(8.18 - 13.26 cm)

12.54"
(31.86 cm)

3.71"
(9.42 cm)

34.40"
(87.38 cm)

Base Plate
Mounting Holes

12.15"
(30.86 cm)

5.60"
(14.22 cm)

12.15"
(30.86 cm)

2.25"
(5.72 cm)

0.20"
(0.51 cm)

Underside of
Boom Arm

6.25"
(15.88 cm)

10.15"
(27.78 cm)

Underside of
Boom Arm

8.90"
(22.61 cm)

68-1838-01
**Rev B**
05 11